

# Polarization Imaging Apparatus for Cell and Tissue Imaging and Diagnostics, Phase II

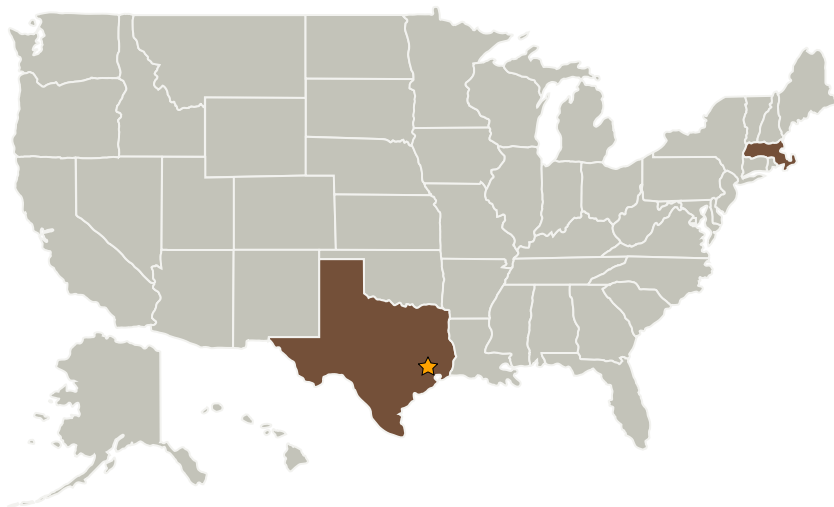
Completed Technology Project (2006 - 2008)



## Project Introduction

This work proposes to capitalize on our Phase I success in a novel visible-near infrared Stokes polarization imaging technology based on high performance fast tunable phase retarder and novel algorithms for analyzing and diagnosing biological phantoms and cells. Phase I results have demonstrated the feasibility of this technique in in-vivo analyzing biological phantoms and cells. In this Phase II proposal, Boston Applied Technologies Incorporated, will team up with the Catholic University of America and Georgetown University to further develop this technique and apply it to biological cell analysis. Prototypes Stokes imaging system with real time video will be designed and developed. Computer-aided diagnosis software will be further developed for the imaging system with improved classification accuracy and speed. The Stokes polarization imaging system and its computer-aided diagnosis software will be tested on fresh tissue samples from laboratory animals. The tissues will include normal tissues from multiple organs as well as cancerous tissue from laboratory animals. The Stokes images will be compared to reflectance confocal microscopy images and standard light microscopy images to reveal the polarization fingerprints of biological tissues/cells.

## Primary U.S. Work Locations and Key Partners



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## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Johnson Space Center (JSC)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
Boston Applied Technologies, Inc.	Supporting Organization	Industry Minority-Owned Business	Woburn, Massachusetts

## Primary U.S. Work Locations

Massachusetts	Texas
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## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

## Technology Areas

**Primary:**

- TX06 Human Health, Life Support, and Habitation Systems
  - └ TX06.3 Human Health and Performance
    - └ TX06.3.1 Medical Diagnosis and Prognosis